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1969

Forest Insect & Disease Conditions

IN ALASKA DURING 1969

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE ALASKA REGION
DIVISION OF TIMBER MANAGEMENT

APRIL 1970

Cover Photograph

Typical of the charter aircraft used during the conduct of the annual insect detection survey in Region 10. The DeHaviland Beaver (cover) and the Cessna 180 and 185 are commonly employed for this purpose.

The annual survey covers all of the commercial lands on the Tongass and Chugach National Forests and extends over portions of the Kenai National Moose Range and selected Bureau of Land Management and Alaska State lands in the interior of Alaska.

FOREST INSECT CONDITIONS

IN ALASKA DÚRING 1969

by

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U.S. Department of Agriculture
Juneau, Alaska

December 1969

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EXPERIMENT STATION

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CONDITIONS IN BRIEF

The spruce beetle remains the most damaging forest insect in Alaska. Epidemic populations continue to kill thousands of white spruce on the Kenai National Moose Range and adjacent state and private lands on the Kenai Peninsula. New infestations in the southcentral and interior portions of the state are causing additional mortality. The infestations in the Caribou Creek and Tonsina River drainages of southcentral Alaska are still active, but declining. Blowdown caused by a severe windstorm in November of 1968 provides abundant material for a potential beetle buildup in southeast Alaska. A program of combined trap-tree and direct control has been successful in reducing beetle populations in the Granite Creek drainage on the Anchorage Ranger District. Additional direct control will be used to reduce beetle populations on a portion of this persistant infestation in 1970. Salvage logging has been recommended as an alternative, wherever possible.

Black-headed budworm populations, low in southeast Alaska since 1965, have increased this season. Defoliation was not observed, but eggs have been found at a great many sampling points south of Frederick Sound. Populations are expected to increase in these areas next year and cause some visible defoliation. Damage by this pest was recorded for the first time last year in Prince William Sound. Three separate infestations, totaling approximately 29,000 acres, produced top-killing and tree mortality in areas of heavy to extreme defoliation. Pupae and egg sample

data indicate that extensive top-killing and some additional mortality will occur over several thousand acres in 1970. No control is being considered for any of these infestations.

The first recorded outbreak of the Saddleback looper in southeast Alaska occurred this past season causing severe defoliation and some tree killing over 200 acres of western hemlock near Ketchikan. Egg sample data indicate that a moderate to heavy population of hemlock sawfly will occur in this same area next year. Combined looper and sawfly feeding is expected to result in additional mortality in 1970. Control measures are being considered for this infestation.

A sharp increase in hemlock sawfly defoliation was observed in southeastern Alaska from Frederick Sound south to Cholmondeley Sound on Prince of Wales Island. Defoliation levels were generally light to moderate, with the exception of one spot near Ketchikan, where extreme defoliation resulted in some mortality. Egg survey data indicate that 1970 sawfly populations will be moderate to heavy in several locations on Revillagigedo Island near Ketchikan and at McKenzie Inlet on the east side of Prince of Wales Island.

The large aspen tortrix, active over much of the interior of Alaska for the past three years, is declining. Starvation and increased parasitism have been taking a heavy toll. This insect is expected to be near endemic levels in 1970.

No projects were undertaken to control defoliating insects during the past year.

STATUS OF INSECTS

Spruce Beetle, Dendroctonus obesus Mann.--Barkbeetle populations, increasing rapidly the past three years, are presently at an explosive level on portions of the Kenai Peninsula. Drought conditions, resulting in severe stress on mature and overmature stands, have provided the necessary catalyst for numerous minor outbreaks, created by a succession of land clearing, petroleum exploration and various right-of-way activities, to erupt into the present major epidemic.

Typical land clearing practice in southcentral and interior Alaska. Land clearing debris provides ideal material for brood development.

The present outbreak, covering more than 40,000 acres and including portions of all white spruce stands from Point Possession to Homer, Alaska, threatens to engulf most of the mature and overmature white spruce stands on the Kenai National Moose Range and adjacent state and private holdings.

Callow adults in exposed bark of drought weakened white spruce.

A continuation of drought conditions coupled with high brood densities and an abundance of suitable host material presents a very discouraging picture. This outbreak is expected to continue unabated in 1970. No direct control is being considered at this time.

Conditions on the National Forest lands on the Kenai Pensula are much more encouraging. Many areas of chronic low level infestation on the Chugach National Forest have become endemic. Some infestations continue, but no new ones have been detected. A 300 acre portion of the Granite Creek-East Fork infestation on the Anchorage Ranger District was treated this year, using both trap-tree and chemical

control methods. Additional tree killing detected in stands adjacent to this treatment area indicates a need for additional control. Planned maintenance treatment in 1970 includes use of trap-trees, and direct control with EDB. Salvage logging is also being considered.

Turning infested portion of white spruce for treatment with ethylene dibromide and fuel oil

Severe drought conditions coinciding with brood emergence from land clearing debris has resulted in heavy tree killing of aesthetically valuable white spruce in suburban areas adjacent to Anchorage. Additional new infestations, created by similar conditions, are causing concern to home-steaders and land developers along the Matanuska River between Palmer and Eureka in southcentral Alaska and in the vicinity of Paxson and Cantwell in the interior.

Tree killing, locally heavy in these areas, will probably continue until suitable host material is depleted or climatic conditions change. Epidemic losses in the mature and overmature white spruce stands of southcentral and interior Alaska will continue to be a locally serious problem until landowners and managers become aware of the factors relating to buildup and are willing to accept the responsibility for implementing some relatively simple preventive measures.

Typical of the blowdown which occurred over much of southeast Alaska in November 1968.

A severe windstorm in November of 1968 blew down thousands of Sitka spruce over much of the Tongass National Forest in southeast Alaska. This blowdown, most of which will not be logged in the immediate future, provides the potential for a

serious beetle epidemic. At present time very little of the downed material has become infested. A survey conducted in portions of the wind damaged areas detected significant broods at only two locations. A number of windthrows adjacent to two separate areas of old logging on private land in the vicinity of Juneau are moderately infested. Some tree killing is expected next year. However, the success of the emerging populations will be dependent on favorable weather conditions during the 1970 flight period. No control is being considered at this time. However, it is recommended that concentrations of spruce blowdown be logged at the earliest possible date.

Cedar bark beetle, Phloeosinus squamosus Blkm.--The cedar bark beetle, active throughout the range of red and yellow cedar in southeast Alaska, was especially concentrated on the South Tongass National Forest. Localized infestations, totaling several thousand acres, were observed on Kupreanof, Wrangell, Etolin, Prince of Wales, and Revillagigedo Island and along the mainland from Bradfield Canal south to Portland Inlet. Especially large concentrations of mortality were observed in the southern half of Wrangell Island, in the vicinity of Bell Arm and along the southern arms of the Boca De Quadra. Tree killing is expected to continue in 1970.

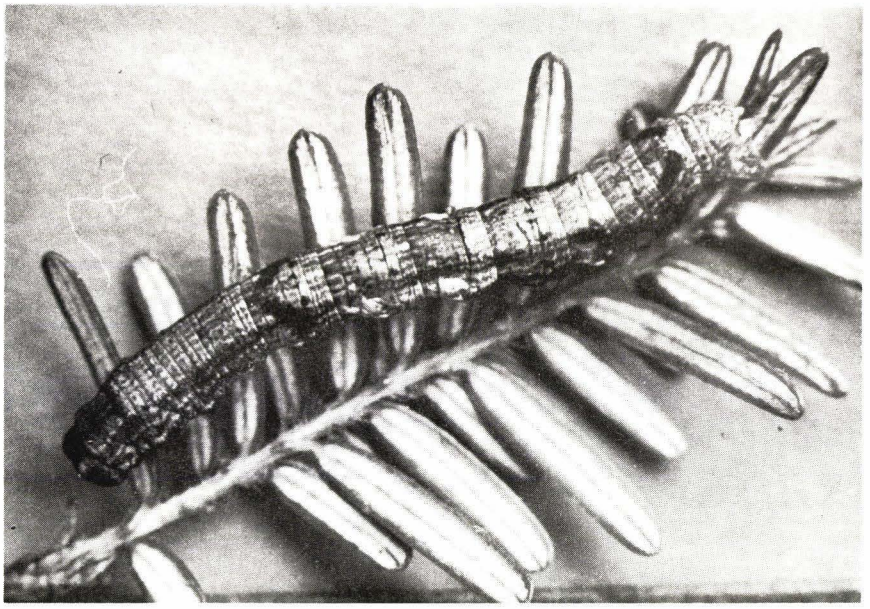
Flatheaded fir borer, Melanophila drummondi.--An increase in wood borer activity was observed in stands of western hemlock located along two miles of the Salmon River near Hyder, Alaska. Siltation of the river bottom, caused by periodic flooding of a glacier fed lake, has resulted in a general decline of the stands in this area. A large number of the weakened and the recently dead hemlock contain a very high population of borers. DBH samples contained as many as 12 larvae per square foot of bark surface. Salvage logging is being employed to control this outbreak.

Portion of severely defoliated western hemlock stand at Eaglek Inlet.

Blackheaded budworm, Acleris variana (Fern.).--Blackheaded budworm populations, low in southeastern Alaska since 1965, have increased this season. Defoliation was not observed during the aerial detection survey, but eggs have been found at a large number of sampling points. Indications are that populations will generally increase south of Frederick sound next year and that some light defoliation will occur. In the Prince William Sound area of southcentral Alaska three separate infestations, totaling approximately 29,000 acres, were detected. These outbreaks, the first recorded in this part of Alaska, occur on Naked Island and in the general areas of Eaglek Inlet and Eshamey-Paddy Bay. The defoliation, occurring on both spruce and hemlock, is generally light to moderate. However, localized concentrations of heavy to extreme defoliation, characterized by extensive top-kill and tree mortality, have occurred. The heaviest defoliation, occurring primarily on hemlock, is located on the isthmus between Squaw and Derickson Bay in Eaglek Inlet and along the headlands between Paddy Point and Granite Bay in the Paddy Bay-Eshamy Bay area. Pupae collections and egg sample data indicate that heavy larva populations will occur in these same areas next year. Many areas with little or no observable defoliation contain very high egg counts; indicating that both populations and areas of infestation are on the increase. Extensive top-killing and some concentrated tree mortality is expected to occur over several thousand acres in 1970.

No control is planned for this outbreak. The stands within these infestations are, for the most part, either classified as noncommercial or are located within the boundaries of a proposed wilderness area. However, portions of these infestations would be ideally suited for several pilot control tests by Federal agencies to find suitable substitutes for the more persistant insecticides.

Adult of the saddleback looper.



Late larval instar of the saddleback looper.

Saddleback looper, Extropis crepuscularia.--The first recorded outbreak of this looper occurred over 200 acres of western hemlock near Ketchikan. One season of feeding produced extreme defoliation and some tree mortality. The hemlock sawfly, found in association with the saddleback looper throughout the infestation center, caused additional light to moderate defoliation in adjacent areas. The combined size of these overlapping infestations is estimated at 500 acres. Insect pathogens, diagnosed by the Forestry Sciences Laboratory at Corvallis, Oregon, as a combination of polyhedral virus and gram negative bacterium, are believed to be responsible for a reduction in late larval populations. Results of a duff sample survey revealed that overwintering pupae exist at a relatively low level

throughout the infestation center. Egg sample data indicate that a moderate to heavy population of sawfly will occur in this same area next year. Combined looper and sawfly feeding is expected to result in additional tree killing. A "standby" control operation is being considered for this infestation.

Hemlock sawfly, Neodiprion tsugae Midd.--A sharp increase in hemlock sawfly defoliation was observed in several areas south of Frederick Sound on the Tongass National Forest. Light to moderate defoliation was observed on Wrangell, Etolin, Revillagigedo and Prince of Wales Island and on portions of the Cleveland Peninsula. Extreme defoliation, resulting in tree killing over 120 acres, occurred in one location on Revillagigedo Island near Ketchikan. Egg survey data indicate that 1970 sawfly populations will be moderate to heavy in several locations on Revillagigedo Island near Ketchikan and at McKenzie Inlet on the east side of Prince of Wales Island. No control is being considered for 1970.

Large aspen tortrix, Choristoneura conflictana (Wlkr.).--Populations declined in the Tanana Valley as anticipated. Seasonal damage, consisting of scattered, light defoliation, was significantly less than in 1968. Complete defoliation occurred for the third consecutive year from Glenallen south to the Chitna cutoff and as far east as Chicken north of Tetlin Junction on the Alaska Highway. Widespread starvation of late instar larvae and an increase of parasitism in these areas indicate that a significant reduction in population is occurring. If the insect follows

the "normal" pattern, it will decline in these areas next year. No control programs are being considered.

Large aspen tortrix defoliation on Bureau of Land Management lands near Glenallen, Alaska.

Unknown budminer.--A budminer tentatively identified as a species of Zeriaphera, present in noticeable numbers on white spruce stands on portions of the Anchorage and Kenai Ranger Districts in 1968, has declined. Larva were present in small numbers at collection sites, but bud damage and discoloration were not generally observed. This population is expected to remain at endemic levels in 1970.

Cottonwood leaf beetle, Chrysomela scripta.--Defoliation of black cottonwood and associated hardwood species was observed on portions of river bottom stands from Port Snettisham to Haines. The largest concentration of defoliation occurred on 200 acres at the north end of Berners Bay. The trend of these infestations was not determined. No control is being considered in 1970.

DISEASES

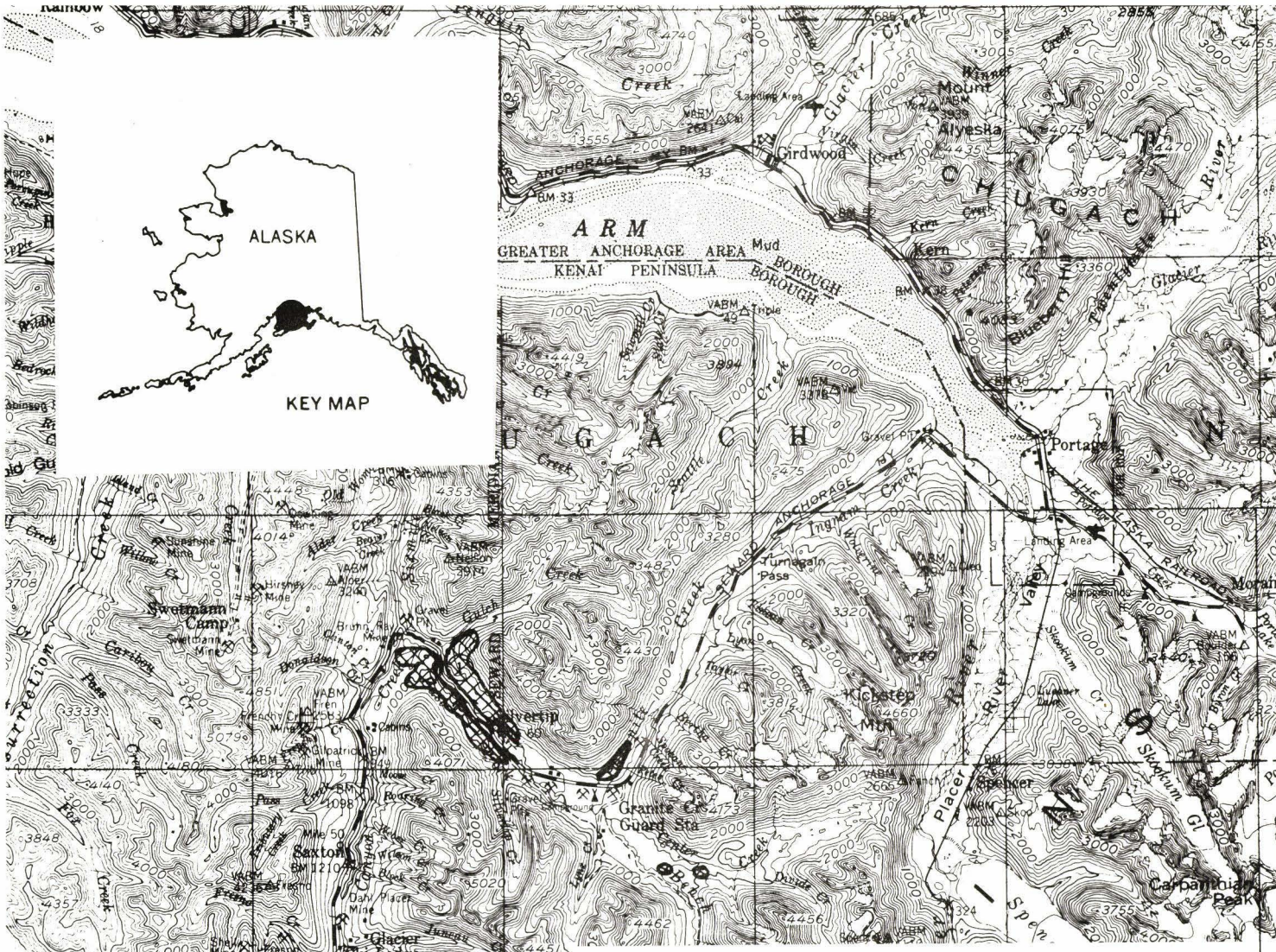
Western dwarf mistletoe, Arceuthobium campylopodum f. tsugensis. Dwarf mistletoe control, consisting of felling infected residuals in clearcut units, was completed on 1,090 acres of the Petersburg Ranger District, North Tongass National Forest. An additional 1,100 acres of control work on this District will be completed by June 30, 1970.

Western gall rust, Cronartium harknessii.--This fungus, a common gall producer on the native lodge pole pine in southeast Alaska, has been causing some concern to homeowners in the Sitka, Petersburg and Ketchikan areas. Limb girdling and tree killing has been observed. However, the most common damage seems to be trunk malformation which results in reduced crown growth.

Western hemlock dieback, Diplodina sp.--Terminal and lateral dieback of advanced hemlock regeneration in the Thomas Bay area of the Petersburg Ranger District is being caused by a pycnidial fungus that has been tentatively identified as a species of Diplodina by pathologists at the Forest Research Laboratory at Victoria, British

Columbia, Canada. This fungus is closely related to Ascochyta parasitica, a shoot-blight of conifers in Europe.

This disease was incorrectly reported as a species of Hypodermella in the 1968 Forest Insect and Disease Conditions Report.



DISTRIBUTION OF MAJOR FOREST INSECT INFESTATIONS IN REGION 10

1969

LEGEND

- Sitka spruce beetle
- Black-headed budworm
- Hemlock sawfly
- Saddleback looper

- Boundary of proposed wilderness area
- Sitka spruce beetle observed, but not fully mapped

Prepared by:

Section of Insect & Disease Control
Division of Timber Management

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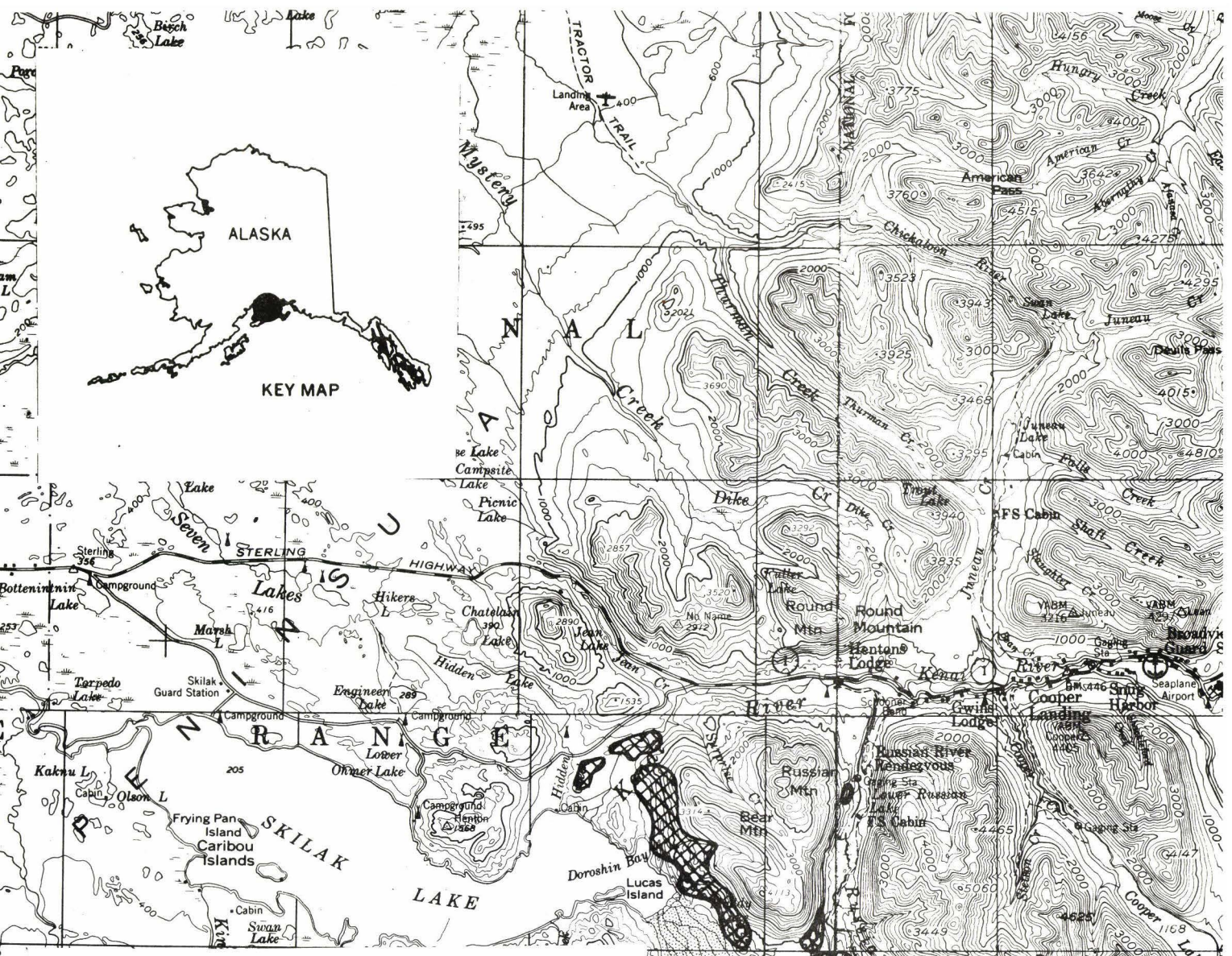

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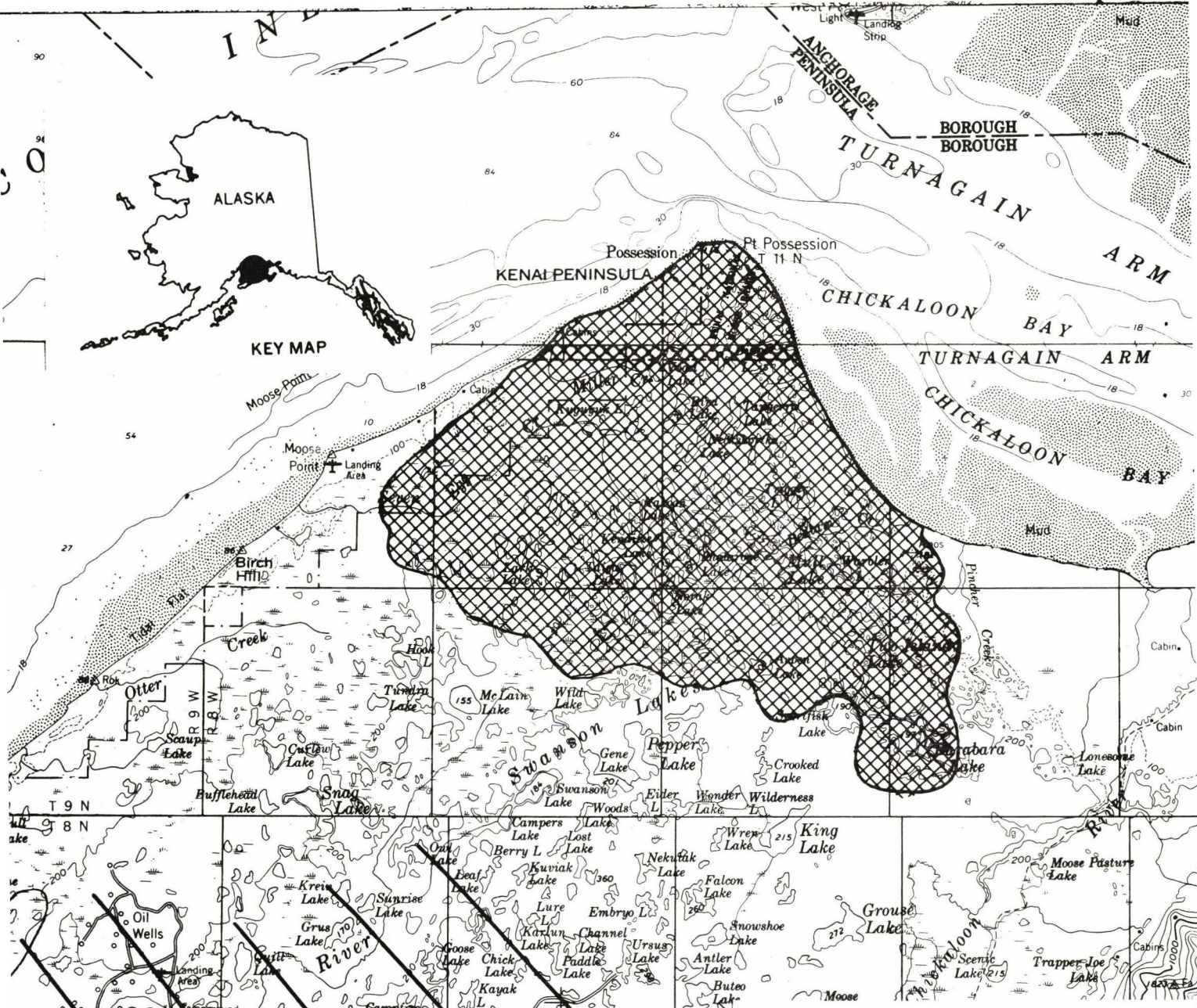

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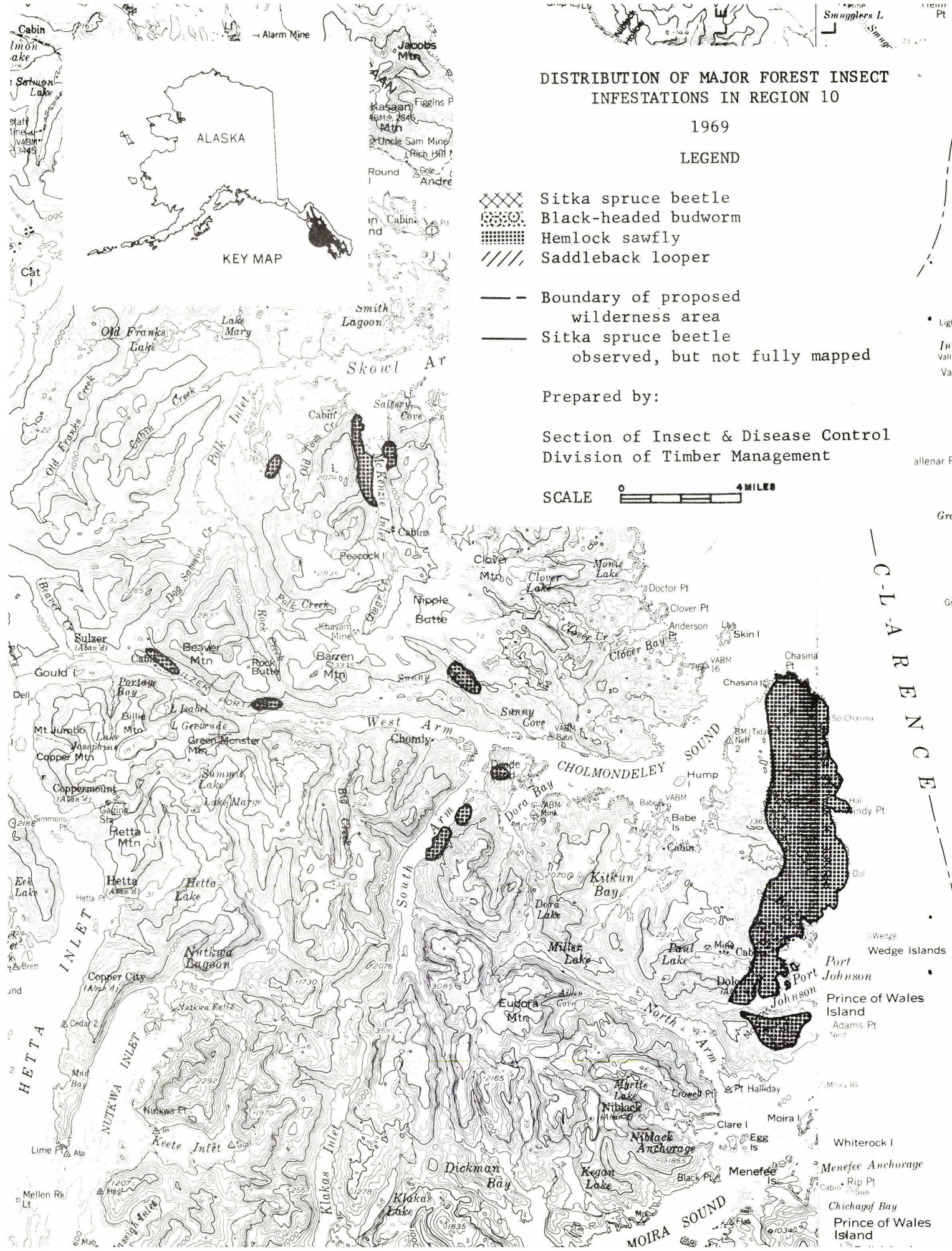
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SCALE
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4 MILES
ALASKA
KEY MAP
C-L-A-R-E-N-C-E
CHOLMONDELEY SOUND
MOIRA SOUND
West Arm
South Arm
North Arm
Kitkun Bay
Dora Bay
Sunny Cove
Clover Bay
Kasaan Bay
Nutkwa Lagoon
Keete Inlet
Dickman Bay
Klakas Inlet
Polk Inlet
Port Johnson
Wedge Islands
Prince of Wales Island
Chichagof Bay
Whiterock I
Menefee Anchorage
Niblack Anchorage
Myrtle Lake
Miller Lake
Dora Lake
Hetta Lake
Klakas Lake
Kegon Lake
Eudora Mtn
Copper Mtn
Green Monster Mtn
Beaver Mtn
Barren Mtn
Nipple Butte
Clover Mtn
Jacobs Mtn
Kasaan Mtn
Hetta Mtn
Billie Mtn
Mt Jumbo
Gould I
Peacock I
Skin I
Chasina Pt
Babe Is
Hump I
Clare I
Egg Is
Menefee Is
Moira I
Dall I
Cat I
Old Franks Lake
Lake Mary
Smith Lagoon
Skowl Arm
Sulzer
Coppermount
Copper City
Hetta
Nutkwa Falls
Mellen Rk
Lime Pt
Mud Bay
Simmons Pt
Eek Lake
Gallinas Sta
Summits Lake
Lake Marie
Lake Josephine
Portage Bay
Dog Salmon Cr
Polk Creek
Rock Creek
Old Town Cr
Old Franks Creek
Cabin Creek
Bear Cr
Sunny Cr
Big Creek
Khayam Mine
Uncle Sam Mine
Alarm Mine
Smugglers L
Doctor Pt
Clover Pt
Anderson Pt
Crowell Pt
Pt Halliday
Black Pt
Rip Pt
Adams Pt
Andy Pt
Cabins
Cabin
Flat
Mine
Tidal
VABM
Hist
Babs
Mink
Neff
Sun
Ata
Brett
Cedar 2
Nutkwa Pt
Hetta Pt
Dell
Isabel I
Grande I
Chomly
Sunny
Dundee I
Paul Lake
Wedge
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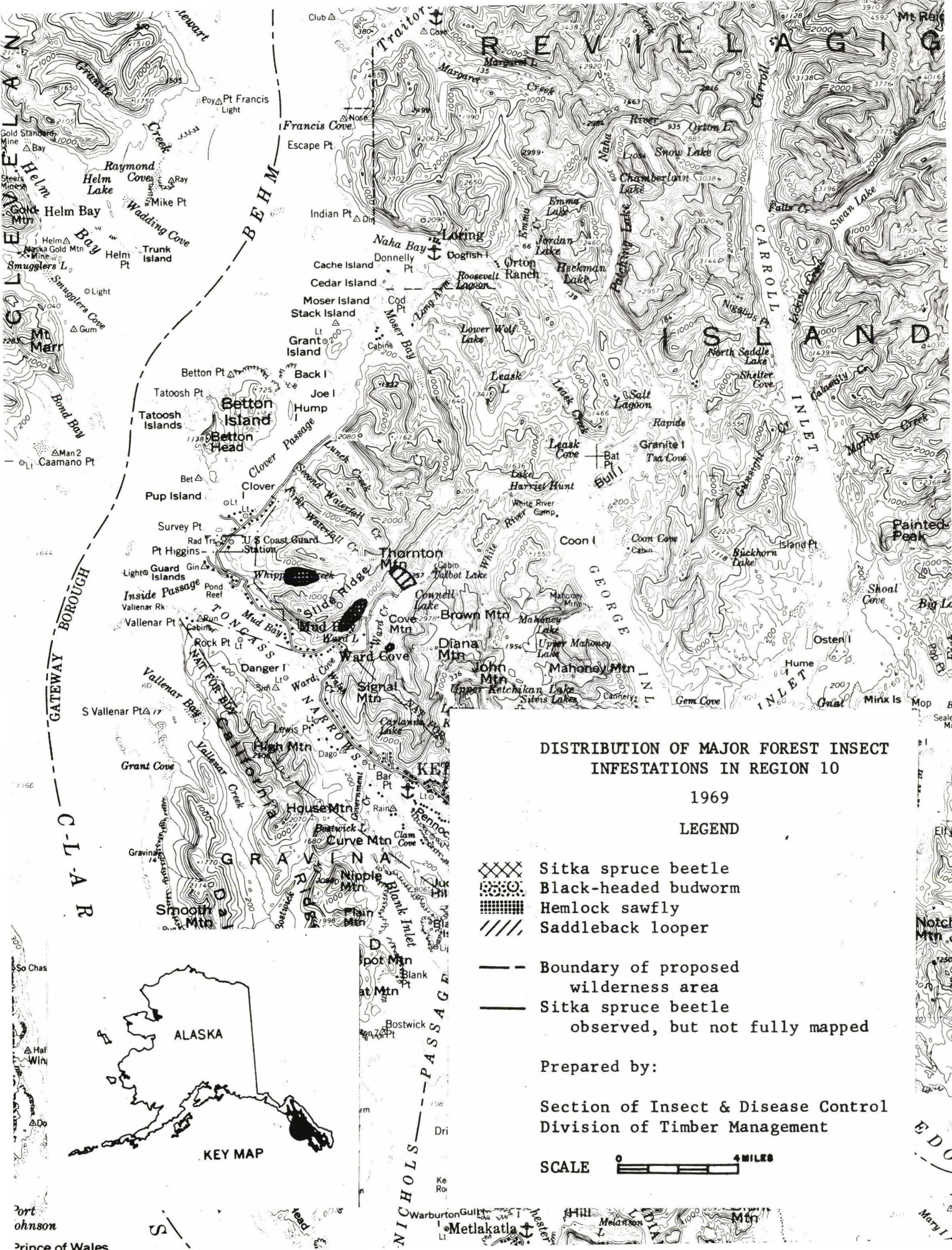
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SCALE
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4 MILES
KEY MAP
ALASKA
GATEWAY BOROUGH
C-L-A-R
BEHM
CANAL
REVILLAGIGEDO
ISLAND
TONGASS
NAT. FOR.
CARROLL INLET
GEORGE INLET
NICHOLS PASSAGE
Francis Cove
Escape Pt
Poy Pt Francis Light
Helm Bay
Helm Lake
Raymond Cove
Mike Pt
Waddling Cove
Trunk Island
Helm Pt
Smugglers Cove
Mt Marr
Bond Bay
Caamano Pt
Betton Island
Betton Head
Betton Pt
Tatoosh Islands
Tatoosh Pt
Back I
Joe I
Hump
Clover Passage
Clover
Pup Island
Survey Pt
Pt Higgins
U S Coast Guard Station
Guard Islands
Inside Passage
Vallenar Pt
Vallenar Rk
Rock Pt
Danger I
S Vallenar Pt
Vallenar Bay
Grant Cove
Vallenar Creek
High Mtn
House Mtn
Curve Mtn
Smooth Mtn
Nipple Mtn
Plain Mtn
Blank Inlet
Bostwick
Bostwick Arm
Clam Cove
Gravina
Cache Island
Cedar Island
Moser Island
Stack Island
Grant Island
Moser Bay
Cod Pt
Donnelly Pt
Naha Bay
Loring
Dogfish I
Indian Pt
Nose
Traitors Cove
Margaret L
Margaret Creek
Naha River
Chamberlain Lake
Snow Lake
Orton Lake
Orton Ranch
Roosevelt Lagoon
Long Arm
Lower Wolf Lake
Leask L
Leask Creek
Leask Cove
Salt Lagoon
Rapids
Granite I
Tad Cove
Bat Pt
Bull I
Lake Harriet Hunt
White River Camp
White River
Thornton Mtn
Talbot Lake
Connell Lake
Brown Mtn
Mahoney Mine
Mahoney Lake
Upper Mahoney Lake
Mahoney Mtn
Diana Mtn
John Mtn
Upper Ketchikan Lake
Silvis Lakes
Ward Cove
Ward Lake
Ward Cove
Signal Mtn
Cavanna Point
Lewis Pt
Dago
Bar Pt
Rain
Government Cr
Coon I
Coon Cove
Cabin
Buckhorn Lake
Island Pt
Painted Peak
Shoal Cove
Osten I
Hume
Gem Cove
Minx Is
Mop
Goat
Sealer
Notch Mtn
Swan Lake
Falls Cr
Victoria Creek
Niggitus Pt
North Saddle Lake
Shelter Cove
Galawaty Cr
Maple Creek
Galaxy Cr
Lunch Creek
Second Waterfall
First Waterfall
Whipple Creek
Mud Bay
Slide Ridge
Ward L
Cove Mtn
Pond Reef
Run
Cabins
Light
Gin
Rad Trs
Gold Standard Mine
Steels Mine
Alaska Gold Mtn Mine
Smugglers L
Gold Mtn
Granite
Creek
Ray
Mike Pt
Gum
Man 2
Lt
Bet
Survey Pt
Rad Trs
Gin
Light
Pond Reef
Run
Cabins
Rock Pt
Lt
Danger I
Lt
Lewis Pt
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